

526,869

10/526869

Rec'd I PTO 04 MAR 2005

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
18 March 2004 (18.03.2004)

PCT

(10) International Publication Number
WO 2004/023750 A1

(51) International Patent Classification⁷: H04L 25/03,
27/26, 25/497

[IT/IT]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). BENVENUTO, Nevio [IT/IT]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(21) International Application Number:
✓ PCT/IB2003/003415

(74) Agent: MAK, Theodorus, N.; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(22) International Filing Date: 4 August 2003 (04.08.2003)

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02078702.4 9 September 2002 (09.09.2002) EP

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,

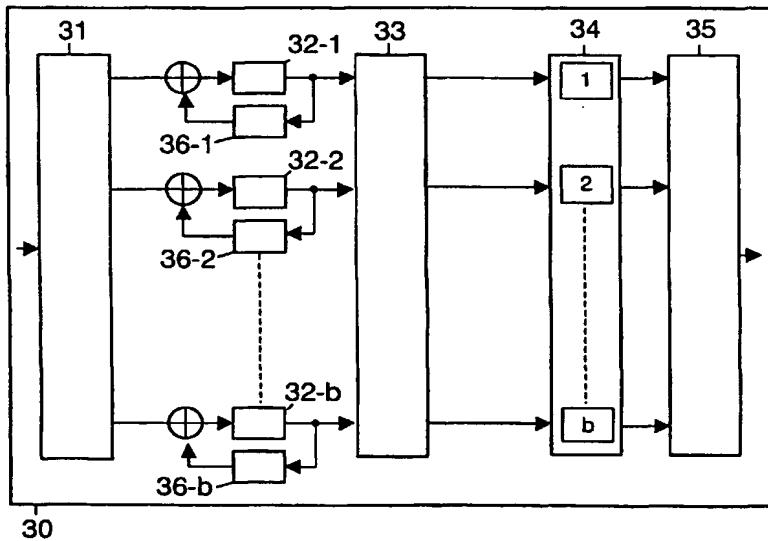
(71) Applicant (for all designated States except US): KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): TOMASIN, Stefano

[Continued on next page]

(54) Title: FILTERBANK MODULATION SYSTEM WITH PRE-EQUALIZATION



30

(57) Abstract: Filterbank-based modulation systems comprise sender-processors (20,30) with inverse-fast-fourier-transforming-modules (23,33) and filtering-modules (24,34) and comprise receiver-processors (40) with fast-fourier-transforming-modules (43). Interference caused by said filtering-modules (24,34) is reduced by, in said sender-processors (20,30), introducing coding-modules (22,32) with further-filtering-modules (26,36) in feedback loops, and by, in said receiver-processors (40), introducing decoding-modules (44). Splitting-modules (21,31,41) and combining-modules (25,35,45) allow the use of signal streams and parallel filterbanks. Coding-modules (22 resp. 32) comprise sub-coding-modules (22-1,22-2,...,22-a or 32-1,32-2,...,32-b), filtering-modules (24 resp. 34) comprise sub-filtering-modules (24-1,24-2,...,24-a or 34-1,34-2,...,34-b), further-filtering-modules (26 resp. 36) comprise sub-further-filtering-modules (26-1,26-2,...,26-a or 36-1,36-2,...,36-b), and decoding-modules (44) comprise sub-decoding-modules (44-1,44-2,...,44-c), all per signal stream. The sub-further-filtering-modules either receive input signals from outputs of said inverse-fast-fourier-transforming-modules and supply output signals via fast-fourier-transforming-modules to inputs of said sub-coding-modules via adding/subtracting-modules for reducing interference per signal stream (or per subcarrier/subband), or receive input signals from outputs of said sub-coding-modules and supply output signal to inputs of said sub-coding-modules via adding/subtracting-modules for reducing interference per signal stream (or per subcarrier/subband) as well as between signal streams (or between subcarriers/subbands) and introducing so-called fractionally spaced filterbank-based modulation systems.

WO 2004/023750 A1